Kansas Department of Health and Environment
Proposed Amended Regulation

Article 35. Radiation

Part 1. General

28-35-135r. Definitions. As used in these regulations, each of the following terms shall have the meaning assigned in this regulation: (a) "Rad" means the unit of absorbed dose. One rad equals one-hundredth of a joule per kilogram of material or the absorption of 100 ergs per gram of material. One millirad (mrad) equals 0.001 rad.

(b) "Radiation area" means any area that is accessible to individuals, in which there exists radiation at such levels that, at 30 centimeters from the source of the radiation or any surface that the radiation penetrates, an individual could receive a dose equivalent in excess of five millirems in one hour.

(c) "Radiation detector" means a device that, in the presence of radiation, provides a signal or other indication suitable for use in measuring one or more quantities of incident radiation.

(d) "Radiation head" means the structure from which the useful beam emerges.

(e) "Radiation machine" means either of the following:

(1) Any device that is primarily intended to produce, and is capable of producing, ionizing radiation; or

(2) any device that is not primarily intended to produce, but does produce, ionizing radiation at a level greater than 0.5 mR/hr at any point five centimeters from its surface.

This term shall not mean any device that produces ionizing radiation only by use of radioactive materials.

(f) “Radiation room” means a shielded room in which irradiations take place. Underwater irradiators shall not be deemed to have radiation rooms.

(g) “Radiation safety officer” means an individual directly responsible for radiation protection. This term shall not apply to part 6 of these regulations.

(h) “Radiation therapy simulation system” means a radiographic or fluoroscopic X-ray system intended for localizing the volume of tissue to be exposed during radiation therapy and confirming the position and size of the therapeutic irradiation field.

(i) “Radioactive marker” means radioactive material placed subsurface or on a structure intended for subsurface use for the purpose of depth determination or direction orientation.

(j) “Radioactive material” means any material, in any chemical or physical form, that emits radiation spontaneously.

(k) “Radioactivity” means the disintegration of unstable atomic nuclei by the emission of radiation.

(l) “Radiograph” means an image receptor on which the image is created directly or indirectly by an X-ray pattern that results in a permanent record.

(m) “Radiographer” means any individual who meets the following conditions:

(1) Performs nonmedical radiographic operations or, while in attendance at the site where those radiographic operations are being performed, personally supervises the operations; and

(2) is responsible to the licensee or registrant, or both, for ensuring compliance with the requirements of these regulations or the conditions of the license, including any specific authorization by the department to provide training to radiographic trainees.

(n) "Radiographer certification" means the written approval received from a certifying entity stating that an individual has satisfactorily met the radiation safety, testing, and experience criteria.

(o) "Radiographer's assistant" means any individual who, under the personal supervision of a radiographer, uses radiation machines, radiographic exposure devices, sealed sources, or related handling tools or survey instruments in industrial radiography.

(p) "Radiographic exposure device" means any instrument with a sealed source fastened or contained in the instrument in which the sealed source or shielding of the source can be moved or otherwise changed from a shielded to unshielded position for purposes of making a radiographic exposure.

(q) "Radiographic imaging system" means any system that produces a permanent or semipermanent image on an image receptor by the action of ionizing radiation.

(r) "Radiographic operations" means all activities performed with a radiographic exposure device or with a radiation machine. These activities shall include the following:

(1) Transporting, except by common or contract carriers;

(2) storing at a temporary job site;

(3) performing surveys to confirm the adequacy of boundaries;

(4) setting up equipment; and

(5) any activity performed inside restricted area boundaries.

This term shall not include transporting a radiation machine.

(s) “Radiological physicist” means an individual who meets at least one of the following requirements:

(1) Is certified by the American board of radiology in any of the following:

(A) Therapeutic radiological physics;

(B) roentgen ray and gamma ray physics;

(C) X-ray and radium physics; or

(D) radiological physics;

(2) is certified by the American board of medical physics in radiation oncology physics; or

(3) (A) Holds a master’s or ~~doctor’s~~ doctoral degree in physics, biophysics, radiological physics, or health physics; and

(B) has completed one year of full-time training in therapeutic radiological physics and an additional year of full-time work experience under the supervision of teletherapy physicist at a medical institution that includes duties that involve performing calibration and spot checks of a medical accelerator or a sealed source teletherapy unit.

(t) “Rating” means the operating limits specified by the component manufacturer.

(u) “Recordable event” means the administration of any of the following:

(1) A radiopharmaceutical or radiation without a written directive if a written directive is required;

(2) a radiopharmaceutical or radiation if a written directive is required, without the daily recording of each administered radiopharmaceutical dosage or radiation dose in the appropriate record;

(3) a radiopharmaceutical dosage greater than 1.11 megabecquerels (30 μCi) of sodium iodide I-125 or I-131 if the administered dosage of both differs from the prescribed dosage by more than 10 percent of the prescribed dosage and if the difference between the administered dosage and the prescribed dosage exceeds 555 kilobecquerels (15 μCi);

(4) a therapeutic radiopharmaceutical dosage, other than sodium iodide I-125 or I-131, if the administered dosage differs from the prescribed dosage by more than 10 percent of the prescribed dosage;

(5) a teletherapy radiation dose if the calculated weekly administered dose exceeds the weekly prescribed dose by 15 percent or more of the weekly prescribed dose; or

(6) a brachytherapy radiation dose if the calculated administered dose differs from the prescribed dose by more than 10 percent of the prescribed dose.

(v) "Recording" means producing a permanent form of an image resulting from X-ray photons.

(w) "Redundant beam-monitoring system" means a combination of two dose-monitoring systems in which each system is designed to terminate irradiation in accordance with a preselected number of dose monitor units.

(x) "Reference man" means a hypothetical aggregation of human physical and physiological characteristics determined by international consensus. These characteristics may be used by researchers and public health workers to standardize the results of experiments and to relate biological damage to a common base.

(y) "Registrable item" means any radiation machine.

(z) “Registrant” means any person who is registered with the department and is legally obligated to register with the department according to these regulations.

(aa) “Registration” means the process of completing and filing forms with the department as required by these regulations.

(bb) “Relocation” means the removal or, after a plume has passed, the continued exclusion of people from contaminated areas to avoid a chronic radiation dose.

(cc) “Rem” means the special unit of any of the quantities expressed as dose equivalent. One millirem (mrem) equals 0.001 rem.

(dd) “Research and development” means either of the following:

(1) Theoretical analysis, exploration, or experimentation; or

(2) the extension of investigating findings and theories of a scientific or technical nature into practical application for experimental purposes, including the experimental production and testing of models, devices, equipment, materials, and processes.

Research and development, as used in these regulations, shall not include the internal or external administration of radiation or radioactive materials to any individual.

(ee) “Respiratory protective equipment” means any apparatus used to reduce an individual’s intake of airborne radioactive materials.

(ff) “Response time” means the time required for an instrument system to reach 90 percent of its final reading when the radiation-sensitive volume of the instrument system is exposed to a step change in radiation flux from zero to a level sufficient to provide a steady-state midscale reading.

(gg) “Restricted area” means any area to which the access is limited by the licensee or registrant to protect individuals against undue risks from exposure to sources

of radiation. This term shall not include areas used as residential quarters. However, separate rooms in a residential building may be set apart and designated as a restricted area. (Authorized by K.S.A. 48-1607; implementing K.S.A. 48-1603 and 48-1607; effective Dec. 30, 2005; amended P-_____.)